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Role of renal aquaporins in escape from vasopressin-induced antidiuresis in rat. *C.A. Ecelbarger, S. Nielsen, B.R. Olson, T. Murase, E.A. Baker, M.A. Knepper, and J.G. Verbalis* 1852

Posttranscriptional effect of insulin-like growth factor-I on interleukin-1β–induced type II–secreted phospholipase A_2 gene expression in rabbit articular chondrocytes. *C. Jacques, G. Bérézíat, L. Humbert, J.-L. Olivier, M.-T. Corvol, J. Masliah, and F. Berenbaum* 1864

Impaired microvascular dilatation and capillary rarefaction in young adults with a predisposition to high blood pressure. *J.P. Noon, B.R. Walker, D.J. Webb, A.C. Shore, D.W. Holton, H.V. Edwards, and G.C.M. Watt* 1873

Primary bile acid malabsorption caused by mutations in the ileal sodium-dependent bile acid transporter gene (*SLC10A2*). *P. Oelkers, L.C. Kirby, J.E. Heubi, and P.A. Dawson* 1880

Autoimmunity caused by disruption of central T cell tolerance. A murine model of drug-induced lupus. *A. Kretz-Rommel, S.R. Duncan, and R.L. Rubin* 1888

Molecular basis of autosomal dominant neurohypophyseal diabetes insipidus. Cellular toxicity caused by the accumulation of mutant vasopressin precursors within the endoplasmic reticulum. *M. Ito, J.L. Jameson, and M. Ito* 1897

Reduced aortic lesions and elevated high density lipoprotein levels in transgenic mice overexpressing mouse apolipoprotein A-IV. *R.D. Cohen, L.W. Castellani, J.-H. Qiao, B.J. Van Lenten, A.J. Lusis, and K. Reue* 1906

Markedly reduced activity of mutant calcium-sensing receptor with an inserted Alu element from a kindred with familial hypocalciuric hypercalcemia and neonatal severe hyperparathyroidism. *M. Bai, N. Janicic, S. Trivedi, S.J. Quinn, D.E.C. Cole, E.M. Brown, and G.N. Hendy* 1917

Effects of angiotensin-converting enzyme inhibitors and angiotensin II type 1 receptor antagonists in rats with heart failure. Role of kinins and angiotensin II type 2 receptors. *Y.-H. Liu, X.-P. Yang, V.G. Sharov, O. Nass, H.N. Sabbah, E. Peterson, and O.A. Carretero* 1926

Roles of interferon-γ and interleukin-4 in murine lupus. *S.L. Peng, J. Moslehi, and J. Craft* 1936

Gene rearrangement: A novel mechanism for *MDR-1* gene activation. *L.A. Mickley, B.A. Spengler, T.A. Knutsen, J.L. Biedler, and T. Fojo* 1947

Intestinal transcription and synthesis of apolipoprotein AI is regulated by five natural polymorphisms upstream of the apolipoprotein CIII gene. *S. Naganawa, H.N. Ginsberg, R.M. Glickman, and G.S. Ginsburg* 1958

Tyrphostin AG 556 improves survival and reduces multiorgan failure in canine *Escherichia coli* peritonitis. *J.E. Sevransky, G. Shaked, A. Novogrodsky, A. Levitzki, A. Gazit, A. Hoffman, R.J. Elin, Z.M.N. Quezado, B.D. Freeman, P.Q. Eichacker, R.L. Danner, S.M. Banks, J. Bacher, M.L. Thomas III, and C. Natanson* 1966

TGFβ1 regulates gene expression of its own converting enzyme furin. *F. Blanchette, R. Day, W. Dong, M.-H. Laprise, and C.M. Dubois* 1974

Rapid determination of clonality by detection of two closely-linked X chromosome exonic polymorphisms using allele-specific PCR. *Y. Liu, J. Phelan, R.C.P. Go, J.F. Prchal, and J.T. Prchal* 1984

Slow ventricular conduction in mice heterozygous for a connexin43 null mutation. *P.A. Guerrero, R.B. Schuessler, L.M. Davis, E.C. Beyer, C.M. Johnson, K.A. Yamada, and J.E. Saffitz* 1991

Role of platelet-activating factor in Chinese hamster ovary cell responses to cholera toxin. *N.M. Thielman, M. Marcinkiewicz, J. Sarosiek, G.D. Fang, and R.L. Guerrant* 1999

Mildly oxidized LDL induces an increased apolipoprotein J/paraoxonase ratio. *M. Navab, S. Hama-Levy, B.J. Van Lenten, G.C. Fonarow, C.J. Cardinez, L.W. Castellani, M.-L. Brennan, A.J. Lusis, and A.M. Fogelman* 2005

Very low density lipoproteins stimulate surfactant lipid synthesis in vitro. *R.K. Mallampalli, R.G. Salome, S.L. Bowen, and D.A. Chappell* 2020

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